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CARDIOVASCULAR FLASHLIGHT

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How e-biking can boost cardiovascular health

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A 45-year-old sedentary office worker (187 cm, 117 kg, body mass index 34) gradually developed intolerance to physical exercise and suffered from general fatigue. He bought an electric bicycle to commute to work and covered a total distance of 80 km per day five times a week. In the next months, he lost 15 kg, the symptoms disappeared and he was well during the next year.

In early 2015, the previous symptoms returned and were now accompanied by typical angina when starting e-biking. After slowing down, angina disappeared and he was able to continue in slower pace. An exercise test showed borderline ST-depressions and very discrete angina.

Coronary angiography revealed a subtotal stenosis of the mid part of the left anterior descending artery (LAD, Panel A, yellow arrow) and a tight stenosis of a large diagonal branch. The residual antegrade flow in the LAD stopped in its middle part (Panel B, white arrows), since there was retrograde flow from a natural bypass, a collateral branch from the right coronary artery (RCA, Panel C, green arrows). After percutaneous coronary intervention of LAD and diagonal branch, antegrade flow was restored (Panel D, green arrows) and the symptoms disappeared.

This example illustrates, how e-biking enables exercise in a large cohort of patients otherwise reluctant to. In our case, it effectively boosted perfect collateral growth, leading to freedom of symptoms and protecting from a large infarction or death. Only after progression of the lesion in the large diagonal branch, which did not receive collateral flow, angina occurred.

